



ES&H SYNERGY

DOE/EH-0487-2

New at the Helm of EH

On December 11, 1998, Dr. David Michaels was sworn in as the Department's new Assistant Secretary for Environment, Safety and Health (EH). Dr. Michaels is an epidemiologist with more than 20 years of experience in public health. He holds both a Masters degree and a PhD in public health from Columbia University and served as a Robert Wood Johnson fellow in health policy for the U.S. House of Representatives. Secretary Richardson called Dr. Michaels "the right person for this job at the right time," pointing to his strong background in occupational and public health and his commitment to excellence in worker safety, environmental protection, and the full and complete understanding of potential health effects from DOE Operations.

In a message to EH staff, Dr. Michaels looked toward the upcoming year, stating that "the Department has many important challenges in the environmental, safety, and health (ES&H) areas." He told the staff that there are several high priority issues facing the Department, including addressing the health concerns of current and former workers, the environmental and health impacts on communities surrounding DOE facilities, and the implementation of Integrated Safety Management across the complex. He also said that to succeed in our mission, "we all need to work together as a cohesive team" and that collectively "we all have an important role to play in advancing this Administration's ES&H agenda." Dr. Michaels also thanked Peter Brush for his accomplishments during his tenure as Acting Assistant Secretary saying that "the ground-work that he has laid is appreciated and cannot be underestimated."

Joining Dr. Michaels is Mr. Richard Kiy, recently appointed by Secretary Richardson to serve as Technical Director for EH. Mr. Kiy is a graduate of Stanford University in economics and Harvard University's John F. Kennedy School of Government. As Technical Director, Kiy will work with Dr. Michaels on all ES&H issues specific to the DOE complex. Prior to joining EH, Mr. Kiy served as Director for Environment, Health & Safety Information Systems for Intesa, (an information technology service joint venture), where he managed a business group dedicated to the design, development, and deployment of EH&S solutions for a variety of clients in the oil and gas industry.

Mr. Kiy has spent the last several months getting to know the ES&H professionals at DOE Headquarters and at field and site locations. The ES&H Synergy staff is looking forward to interviewing this new EH management team for our next issue's "Straight Talk."

The Office of Oversight: Teamwork Ties It Together

In late 1994, the Department of Energy (DOE) created a vigorous independent oversight program to meet its commitment to maintain a demonstrable separation of the independent oversight function from line management and from technical assistance activities conducted by the Office of the Assistant Secretary for Environment, Safety and Health (EH). Headed by Deputy Assistant Secretary, Glenn Podonsky, the office is responsible for overseeing the Department's nationwide environment, safety, health (ES&H) and safeguards and security programs, and also is responsible for conducting the Department's accident investigation program. The primary goal of the Office of Oversight is to be a catalyst that promotes constructive change in line management programs relevant to integrated safety management and security.

Focusing on the principal elements of safety and security management and on line management responsibilities, the Office of Oversight provides essential information to senior DOE managers

that significantly contributes to the protection of workers, the public, and the environment. Regularly sched-

OVERSIGHT

Independent Oversight
Follow-on Review of the Status of
**DOE's Year 2000
Compliance**

October 1998

Environment
Safety
Health
Safeguards
Security

Office of Oversight

Office of Environment, Safety and Health

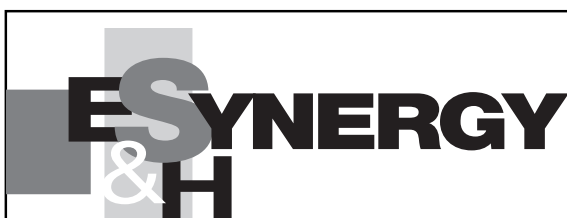
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TECHNICAL INFORMATION SERVICES
Connecting the World of Environment, Safety and Health

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ES&H Synergy is a quarterly newsletter published by DOE's Office of Environment, Safety and Health (EH) to promote awareness and information exchange of all environment, safety, and health issues impacting DOE personnel and contractors. Each issue highlights Headquarters and field initiatives in environment, health physics, nuclear and facility safety, occupational medicine, and occupational safety and health. To be added to the distribution list or to receive a copy of this publication, call 1-800-473-4375. Synergy is also available electronically through Technical Information Services at <http://tis.eh.doe.gov/docs/synergy/synergy.html>.

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uled briefings on the results of Office of Oversight evaluations are provided to Congressional committees. Briefings also are provided to the Defense Nuclear Facilities Safety Board and the public (Citizens' Advisory Boards).

Synergy staff interviewed 22 members of the Office of Oversight to get their views on how teamwork is implemented in their areas, and how the team concept contributes to results. Throughout the organization, from administrative staff to office directors, we found that teamwork is highly regarded—not just as a good idea, but as the practical basis for fulfilling the Office of Oversight's mission.

The Office of ES&H Evaluations

The Office of ES&H Evaluations uses the Department's integrated safety management system policy as a framework for evaluating line management performance. The evaluations have prompted improvements in line management, reliability of safety systems, and various programs essential to ES&H. The evaluations have identified, and continue to identify, significant systemic ES&H vulnerabilities. They have provided a clear, positive benefit to the Department through safety risk and liability reduction, significant cost reductions, and the elimination of unwise expenditures. These evaluations are the Department's comprehensive and integrated approach to internal, independent oversight of DOE and contractor line management.

Teamwork is a critical factor in these evaluations because they involve staff with different backgrounds and interests who are asked to work together in the field for weeks at a time, and then to come up with one cohesive, integrated product. To evaluate whether the sites are fully integrating protection of the environment, safety, and the health of the workers into the site mission and work activities at all levels,

Success is ultimately determined by the extent to which we facilitate and cause change in terms of improving safety performance. . . . We work very hard to write our reports in such a way that we are not only identifying a problem, but also the most appropriate solutions. We don't solve the problem for [the sites], but neither do we leave them floundering.

Mike Kilpatrick
Director
Office of ES&H Evaluations
Office of Oversight

" . . . as far as the actual [evaluation] teams go, we try to put together a team and keep them together for an extended period of time . . . so all the activities require people to constantly work together. . . the team really extends to contacts at the sites and the different site areas. There's continuous dialogue with these points of contact, so you really have, in fact, a team approach with both the contacts and your individual team members."

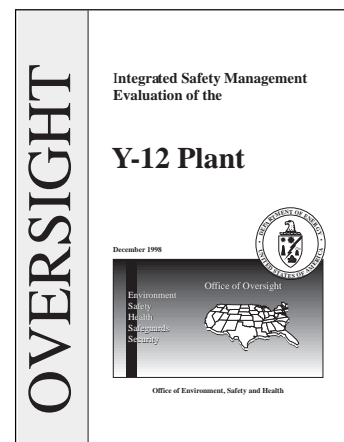
Pat Worthington
Deputy Director
Office of ES&H Evaluations
Office of Oversight

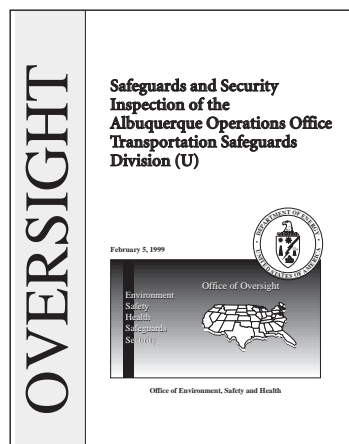
this office takes a broad look at DOE and contractor management programs intended to ensure excellence in the safety arena. In addition, more focused technical teams look at selected facilities and programs to determine whether the systems in place function as designed.

The Office of Security Evaluations

The Office of Security Evaluations conducts safeguards and security evaluations and develops site profiles of major DOE sites. Evaluations determine the effectiveness of the protection of nuclear weapons components, special nuclear material, and classified and

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sensitive information, while site profiles are part of a comprehensive set of baseline information on safeguards and security programs throughout the complex.

The Office of Security Evaluations is also responsible for the DOE's accident investigation program, which investigates major accidents at DOE sites to determine root causes and identify lessons learned and corrective actions. In addition to investigating the most serious (Type A) accidents, the Office of Oversight monitors less-serious (Type B) accidents, which are investigated by the field elements. The Office of Oversight also provides guidance for performing investigations and analyzes trends and precursors. The accident investigation program manager shares information, via video teleconference and other

means, with stakeholders and other agencies, such as the Environmental Protection Agency, the Nuclear Regulatory Commission, the Department of Transportation, and the Federal Aviation

Administration. Information about Type A and B accidents is also posted on the Internet to help disseminate lessons learned.

Implementing a team concept [in the accident investigation arena] is easier because everybody has the same goal—to stop accidents from occurring—so we have a common denominator: safety.

Dennis Vernon
Accident Investigation Program
Manager
Office of Oversight

Teams—relatively permanent, matrix-type teams that maintain the expertise and current, site-specific knowledge needed to provide authoritative information to the Oversight program. As one example, the integration teams developed ES&H site profiles, synthesizing all the information gathered within the Office of Oversight for 21 DOE sites. These are updated and validated with field managers twice a year to maintain accurate, current summary information on the status of hazards, strengths, weaknesses, and upgrades at key DOE facilities.

The training and qualification program is another responsibility of Oversight Planning and Analysis. This program ensures that staff not only maintain the cutting edge in

With our strategy . . . management [can] see how knowledgeable and respected experts, working with their staffs to ensure factual accuracy, have arrived at conclusions concerning needed improvement.

Barbara Stone
Director
Office of Security Evaluations
Office of Oversight

Office of Oversight Planning and Analysis

One of the major functions of the Office of Oversight Planning and Analysis is the followup program, which examines the effectiveness of actions taken to correct weaknesses identified during evaluations or accident investigations. Followup reviews often involve the Oversight Integration

Russo told the Synergy staff that working in this office had "broadened his background and experience in the Department, giving him a better appreciation for not only environmental issues but safety and health issues as well." He believes this is true for a lot of people in the office. "I think they are really given an opportunity to do some things that stretch them, give them the ability to work to their full potential, and that is a real plus."

Frank Russo
Acting Director
Office of Oversight Planning and
Analysis

The Office of Oversight is the only organization I know of in DOE that completed 100 percent of the technical qualification program by the original cutoff date. This office . . . can't operate in a vacuum; there has to be a teamwork effort that involves everyone.

Steve Petersen
Training Program Leader
Office of Oversight Planning and Analysis
Office of Oversight

scheduling additional evaluations and for maintaining the infrastructure needed to ensure adequate followup. The analytical effort looks at the difference between the raw data and each activity that comes in and asks, "What is going on here?" while preparing people to focus on the next cycle of inspections. These efforts are supported by an information technology infrastructure that includes a home page, Lotus notes-based systems that feed into a database, and frequent communications with the Oversight staff in the field: the EH Residents.

Office of EH Residents

The EH Residents are the "eyes and ears" of the Office of Oversight, providing day-to-day onsite monitoring of ES&H and safeguards and security policies and programs in the field. The EH Residents evaluate performance through a comprehensive program of surveillance, followup, and verification of closure of identified deficiencies, and they also provide regular updates on the status of corrective actions and upgrades. One challenge within the Office of EH Residents is building a sense of teamwork among the onsite residents and the

The residents are familiar with the operations of a particular site, so they are able to answer questions of others within the Office of Oversight. They are a focal point for operational activity. . . Whatever issue comes up relative to ES&H, whether it is radiation protection or some emergency response activity, the residents get involved.

Ray Hardwick
Director
Office of EH Residents
Office of Oversight

their areas of expertise, but also are certified and recognized as meeting all DOE training requirements. Focused workshops and seminars are provided to help staff understand Oversight's myriad of activities and how they tie back into individual missions. Another project under way is a plan to maintain technical excellence and the appropriate skill mix needed to support Office of Oversight activities by training "backup" personnel in key areas.

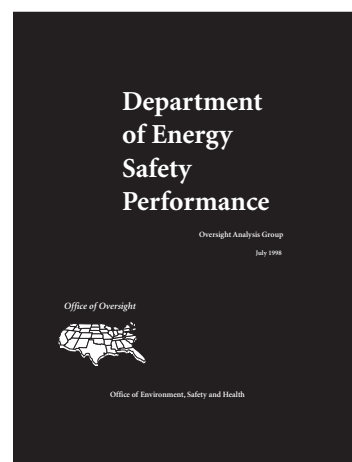
The Oversight Analysis Group ensures the integrated collection, analysis, and dissemination of the results of Oversight activities. Analyzing the data from Oversight evaluations provides information for planning and

We have all the in-depth inspections as well as the continuum of the single-point data . . . By putting it all together, we are giving managers information as opposed to data.

Mari-Jo Campagnone
Oversight Analysis Group Leader
Office of Oversight

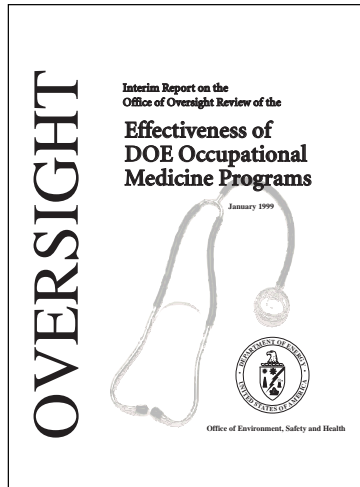
Headquarters-based Office of Oversight staff. Weekly video teleconference staff meetings facilitate communication with and among the onsite residents, giving them an opportunity to discuss activities and developments at one site that may be relevant to other sites. The onsite residents have diverse responsibilities. They may lend their expertise to support evaluations or participate on Oversight Integration Teams, and they play a key role in the ES&H site profile process—developing the content and facilitating the verification/validation process with management.

The EH Residents in the field feel that, although distance is sometimes a problem, they clearly function as part of the overall



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team. By getting together regularly to discuss activities at the site, Office of Oversight findings, and what Oversight should do at the site over the year, they contribute significantly to Oversight activities. The Office of Oversight benefits from their site-specific knowledge, which they use to support Headquarters initiatives. The EH Residents do not direct site operations in any way, but they perform oversight of site activities with a specific focus on whether DOE line management is effective in fulfilling their roles. The Oversight Integration Teams are key in utilizing the onsite residents' insights for the benefit of the entire Office of Oversight.

Tying It Together with Teamwork

Since its creation in late 1994, the Office of Oversight has conducted 14 safety management evaluations, 10 comprehensive safeguards and security evaluations, 7 followup reviews, and 24 special reviews. It also has been direct-

ly involved in 14 accident investigations and has monitored, provided programmatic assistance, and tracked the investigative progress of 22 others. In addition to these evaluative activities, the Office of Oversight has developed and updated the ES&H site profiles every 6 months for the past 2-1/2 years. In 1998, Oversight extended the site profile concept into the safeguards and security arena, developing classified profiles summarizing safeguards and security programs, status, and developments at 16 major sites. The Office of Oversight has also created a state-of-the-art information management infrastructure to support evaluations, analysis, and data gathering in the field, as well as a fully implemented training and qualification program.

In interviews with Synergy staff, members of the Office of Oversight ascribed their success to the philosophy of teamwork. It is clear that the team concept has fostered success in meeting performance objectives and attaining the office missions and that it empowers staff as well.

It is not hard to maintain your independent perspective of site operations if you are having a positive impact on the safety of the worker, protection of the public, and good management of the environment.

Dennis Godbee
EH Resident
Savannah River Site
Office of Oversight

Site Initiative Receives National Recognition

The Savannah River Site (SRS) recently received the NEPA Presidential Excellence Award for integrating National Environmental Policy Act (NEPA) compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) processes at the site.

The National Association of Environmental Professionals recognized the Westinghouse Savannah River Company/Department of Energy team of Bart Marcy, John Sessions, Richard Rustad, and Brian Hennessey for developing an integration guidance document that complies with both NEPA and CERCLA regulatory requirements. Integration guidance combines public participation processes, eliminates redundant environmental sampling and impacts analysis, and reduces document preparation efforts.



The team pictured from left, Richard Rustad and Brian Hennessey, DOE, Savannah River Operations Office, Bart Marcy and John Sessions, WSRC and Ambrose Schwallie, WSRC president.

EPA to Boost RCRA Section 6002 Enforcement

Executive Order 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*, signed by President Clinton on September 14, 1998, directs the Environmental Protection Agency (EPA) to prepare guidance for use in determining Federal facility compliance with Resource Conservation and Recovery Act (RCRA) Section 6002 and related requirements of the revised Order. The guidance will be prepared within 6 months of the date of the Order. EPA's Office of Solid Waste and Emergency Response (OSWER) and Office of Enforcement and Compliance Assurance (OECA) will have primary responsibility for preparation of the guidance, which will be used as appropriate by EPA during compliance inspections at Federal facilities.

EPA conducts a variety of inspections at Federal facilities, including both "multimedia" inspections—covering at least two regulatory media programs (i.e., RCRA, CAA, CWA, TSCA, EPCRA, FIFRA and SDWA)—and single media inspections. Section 403(b) of the new Order directs that, when EPA is conducting Federal facility compliance inspections (either RCRA inspections or multimedia inspections where there is a RCRA component to the inspection), those inspections should include an evaluation of the facility's compliance with RCRA Section 6002 and related requirements of the Order based on new guidance.

Twenty-seven multimedia inspections were performed at Federal facilities nationwide during fiscal year 1997 in a coordinated effort by EPA and state inspectors. The multimedia inspections took place at 4 civilian Federal Agency facilities—the U.S. Postal Service, Department of Justice, Department of Veterans Affairs, and Department of Interior/Bureau of Indian Affairs—as well as 20 Department of Defense facilities and 3 Department of Energy facilities. During the same time period, EPA conducted 115 RCRA inspections at Federal facilities.

Section 403 of Executive Order 13101 also states that EPA should encourage states conducting compliance inspections at Federal facilities under RCRA to include evaluations of facility compliance with RCRA Section 6002 including, where appropriate, consideration of the previously mentioned EPA guidance. Finally, the order directs EPA to report annually to the Federal Environmental Executive (FEE) on results of EPA Federal facility inspections where facility compliance with RCRA Section 6002 was a component of the inspection. The report is due in February for inspections conducted during the previous fiscal year. Given the time frame established by the Order for development of the guidance, the first report will be transmitted to the FEE in February of 2000.

This article was taken from *Closing the Circle News*, "President Clinton Signs Executive Order on 'Greening' the Government," Special Issue 1998, p. 10, Issue #12. Executive Order 13101 is available on the Internet at the Office of the Federal Environmental Executive's Web Site (<http://www.ofee.gov/eo13101/13101.htm>).

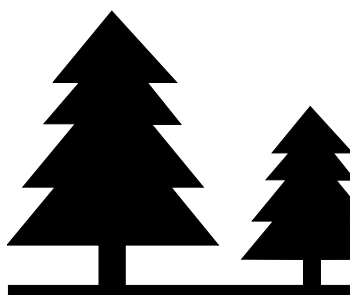
For more information, contact Jerry Coalgate Office of Environmental Policy and Assistance, RCRA/CERCLA Division, at (202) 586-6075 or e-mail (jerry.coalgate@hq.doe.gov).

Savannah River Site Construction Safety and Environmental Services Meets Safety Milestone for 10th Time

For the tenth time since Bechtel took over Savannah River Site (SRS) construction services in 1989, workers have achieved 2 million safe hours without a lost-time injury. The most recent safety milestone was accomplished on March 5, 1998. To put this achievement in perspective, one person would need to work for 1,000 years in moderate to high hazards, 8 hours a day, 5 days a week to reach the 2-million hour safety record; the average American construction contractor has 37 lost-time injuries in 2 million exposure hours. At Savannah River, 700 craft workers and 450 nonmanual support personnel, all dedicated to "Safety Excellence," achieved this safety milestone. SRS Construction Services workers are now focusing on successfully achieving the next construction safety goal—one calendar year without a lost-time injury—on April 29, 1999. If workers also reach the 2.5 million mark, they will receive the Westinghouse Savannah River Company President's Award.



Countdown to the President's Award: Construction personnel proudly celebrate achieving "2 Million Safe Hours" for the 10th time since 1989. Workers could receive the WSRC President's Award at the 2.5 million mark in June 1999.



Mapping the Future: A Guide to Environmental Cleanup Efficiency

The Idaho National Engineering and Environmental Laboratory (INEEL) is assisting the Department of Energy (DOE) Office of Environmental Management (EM) in establishing and communicating the complexwide cleanup mission. The Environmental Management Integration Program, under the direction of Lockheed Martin Idaho Technologies Company's (LMITCO) Greg Frandsen, is developing waste and material disposition paths and identifying intersite integration opportunities. The program is responsible for compiling "roadmapping" processes from the best in the industry and incorporating those techniques into an effective and complete complexwide roadmapping implementation guide.

Roadmapping is a planning tool that takes a project or program through a four-step analysis of its current conditions, where it needs to be in the future, and the science and technology needed to reach its successful completion. For example, one of the challenges for the EM Program is to identify methods for managing the program's main business objectives. The roadmapping process accomplishes this task by creating consensus, establishing a common vision, reducing duplication in actions, and developing a clear picture of current conditions and desired end states.

INEEL recently hosted a roadmapping workshop, led by Motorola's roadmapping expert, Pat Richardson, vice president and general manager of Emerging Business Center, Millennium Ventures. This workshop, the first of its kind, was a learn-by-doing experience that demonstrated Motorola's successful roadmapping process through an analysis of the INEEL's High-Level Waste Program. The workshop helped integrate the EM Roadmapping Core Team, which consists of engineers, scientists, and researchers from INEEL's EM Integration Roadmapping Program, DOE-Idaho, DOE Headquarters, and various national laboratories. Through Richardson's workshop, the team received an understanding of Motorola's roadmapping process. The team also gained valuable insight for developing an effective, complexwide, roadmapping implementation guide.

Beryllium Disease Prevention Program Moves Forward

Secretary of Energy Richardson signed the Notice of Proposed Rulemaking (NPR) to establish a Chronic Beryllium Disease Prevention Program (CBDPP) on October 30, 1998. Covering Federal and contractor beryllium workers, the proposed CBDPP rule is designed to prevent future cases of the disease while addressing health effects from past operations. The interim program requirements prescribed in DOE Notice 440.1, "Interim Chronic Beryllium Disease Prevention Program," and the NPR are based on three fundamental principles: minimize the levels of and potential for beryllium exposure, minimize the number of workers exposed, and establish medical surveillance protocols to ensure early detection of disease and sensitization. The proposed rule is intended to replace the Notice, as well as enhance current beryllium disease prevention programs with the following:

- an action level and short-term exposure limit that trigger certain precautions and control measures;
- an exposure reduction and minimization requirement that will encourage contractors to reduce potential exposures below defined levels;
- delineated controls for regulated areas, change rooms, respiratory protection, housekeeping, and waste disposal; and
- a medical surveillance, removal, and consent program designed to ensure prompt identification and proper treatment of workers who become sensitized to beryllium or develop chronic beryllium disease (CBD).

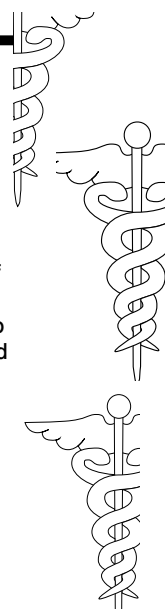
Through June 1998, 110 DOE workers have been diagnosed with CBD among the 9,000 current and former workers screened. In addition, 232 DOE workers have been sensitized to beryllium. Currently, more than 1,000 workers at 15 sites are potentially exposed to beryllium.

The rulemaking will assure consistent implementation of requirements across the complex, as well as provide the opportunity for all potentially affected individuals and organizations to comment. Publication in the Federal Register commenced a 90-day public comment period, including 3 public hearings. Details for submitting written comments and/or speaking at the hearings are provided in the NPR. Copies of the NPR may be downloaded from the Federal Register Web Site at http://www.access.gpo.gov/su_docs/aces/aces140.html or the Worker Health and Safety Beryllium Web Site at <http://tis.eh.doe.gov/bel/>. For more information, contact Jacqueline Rogers at 301-903-5684 or Ed Patigalia at 301-903-3972.

Symposium on Systems Engineering Held at INEEL

Systems Engineering has long been used throughout government and industry to help programs succeed within cost and schedule, and its potential for providing similar results within the Department of Energy (DOE) makes it a tool worth using. That was the theme of the October 27-28, 1998, "Systems Engineering within the DOE Complex" symposium sponsored by Lockheed Martin Idaho Technologies Company (LMITCO) and the DOE Idaho Operations Office held in Idaho Falls, Idaho.

Speaking to symposium participants, John Denson, LMITCO president, described systems engineering as a proven discipline that defines and manages program



requirements, controls risk, ensures program efficiency, supports informed decisionmaking and verifies that products and services meet customer needs. LMITCO has committed to incorporating proven systems engineering practices at INEEL to integrate programs and projects and deliver better results in a more cost-effective and timely manner.

Although systems management is the way of doing business in other government agencies, such as the Department of Defense, project management continues to be the primary method of conducting business in DOE. Symposium panelists agreed that finding ways to blend systems management and project management has been a tough ordeal in much of the DOE. However, there are pockets systems engineering excellence, such as the Mixed Waste Focus Area, which uses a formal set of systems requirements to find cost-effective solutions for the nation.

Lindsay Coffman, who leads DOE Headquarters' efforts to implement systems engineering throughout the complex, told symposium participants she believes that "systems engineering is a better way of doing business and it's important to demonstrate through successful projects that it does work in the DOE complex." DOE-Idaho and LMITCO are heading up efforts to establish a systematic approach for programs, projects, and facilities management through the Partnership in Systems Engineering Excellence and are providing training in systems engineering principles and practices throughout the DOE complex.

Update on Three Mile Island Fuel Storage Project

Progress continues to be made on the Idaho National Engineering and Environmental Laboratory (INEEL) Three Mile Island-Unit 2 Dry Storage Project. Three of the concrete storage modules that will be part of the Independent Spent Fuel Storage Installation (ISFSI) are already at the INEEL Nuclear Technology and Engineering Center, and seven more will be delivered by mid-November.

Ultimately, the ISFSI will have 30 modules. Twenty-nine will hold a dry-shielded canister loaded with 12 containers of TMI-2 fuel debris, and 1 module will remain empty for standby use. The modules weigh about 120 tons and measure 10 feet wide, 15 feet high, and 18 feet deep. Twenty-nine canisters are needed to hold the 344 containers of TMI-2 fuel debris now stored underwater in the INEEL Test Area North (TAN) pool. A full-scale canister mockup will be used to test equipment, train personnel, and qualify fuel-handling procedures before actual shipments from TAN to Idaho Nuclear Technology and Engineering Center start. All transport equipment needed to move the TMI-2 spent fuel is at the INEEL.

At TAN, employees are finalizing equipment fabrication and preparing to check and test the system that will be used to dry the containers of TMI-2 fuel debris. The demonstration will verify and qualify the drying process and monitor for potential gas generation following the drying process. The drying system will be operated in the TAN Hot Shop. Employees working on the project have also responded to two rounds of comments from the Nuclear Regulatory Commission, which must issue a license to Department of Energy (DOE) before the ISFSI can operate.

DOE-Idaho employees overseeing the project are Peter Dirkmaat, program director; Barbara Beller, project manager; Jan Hagers, NRC licensing manager; Charles Maggart, NRC licensing coordinator; Bob Davis, quality assurance; and James Wade, project engineer. Newport News Shipbuilding is the subcontractor for the pro-

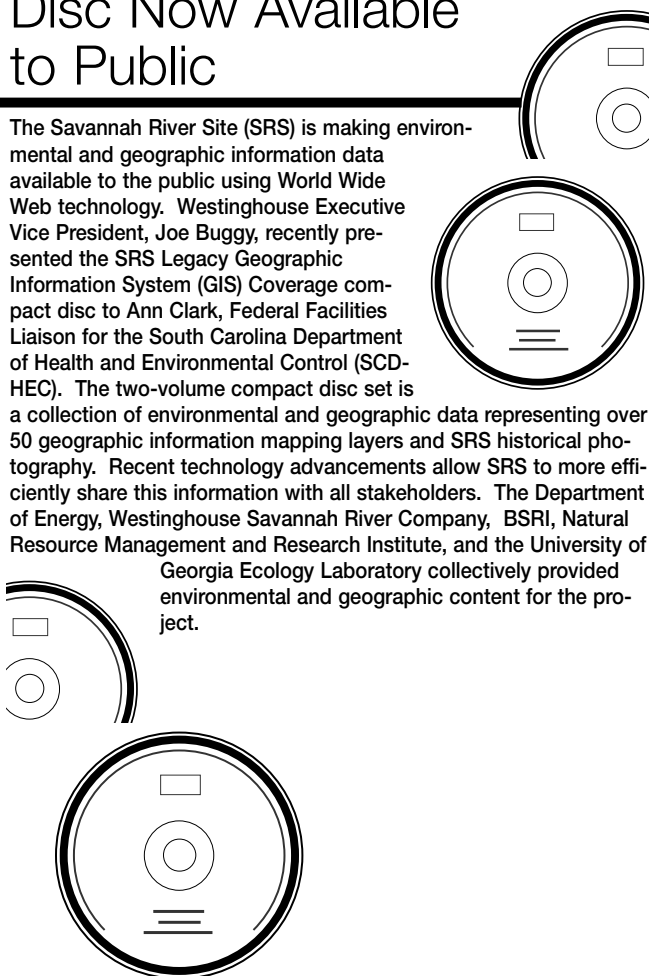
ject. Transnuclear West, owner of the NUHOMS Storage System, and prime subcontractor to Newport News Shipbuilding. The ISFSI is one of the projects established under the Idaho Settlement Agreement. By December 31, 1998, the ISFSI construction must be completed; by March 31, 1999, INEEL must begin moving TMI-2 fuel; and by June 1, 2001, all TMI-2 fuel must be in dry storage.



Making the compact disc presentation (from left, Joe Buggy, Ann Clark, Brent Rankin, ESH&QA deputy manager; and Russ Beckmeyer, PE&CD Engineering and Scientific Computing).

Savannah River Site Geographic Compact Disc Now Available to Public

The Savannah River Site (SRS) is making environmental and geographic information data available to the public using World Wide Web technology. Westinghouse Executive Vice President, Joe Buggy, recently presented the SRS Legacy Geographic Information System (GIS) Coverage compact disc to Ann Clark, Federal Facilities Liaison for the South Carolina Department of Health and Environmental Control (SCDHEC). The two-volume compact disc set is a collection of environmental and geographic data representing over 50 geographic information mapping layers and SRS historical photography. Recent technology advancements allow SRS to more efficiently share this information with all stakeholders. The Department of Energy, Westinghouse Savannah River Company, BSRI, Natural Resource Management and Research Institute, and the University of Georgia Ecology Laboratory collectively provided environmental and geographic content for the project.



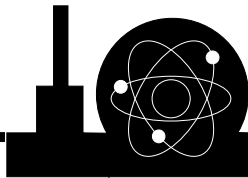
INEEL Implements New Approach to Waste Management

Idaho National Engineering and Environmental Laboratory (INEEL) is bringing a new, focused approach to waste management. This new approach gives responsibility to one organization, Waste Generator Services, for all aspects of the waste management process, from generation to disposal. A waste specialist serves as a single point of contact appointed for each type of waste generated at the site. These waste specialists play an important role in safely and cost-effectively managing the INEEL's hazardous, radioactive, mixed low-level and industrial waste.

Accountability is the focus of these waste specialists, and waste management is their only job. They assist the generator in waste minimization and avoidance and take responsibility for treatment, storage, and disposal; getting everyone on board.

Coreen Casey, a Lockheed Martin Idaho Technologies Company supervisor, retains responsibility for smooth deployment of the waste management service. Casey goes into the facility and works on getting all the agreements in place that will allow for an easy transition. This up-front work includes writing memorandums of agreement among the generators and the Waste Generator Services organization. Casey believes that managing waste from the point of generation to disposal by qualified individuals improves both worker safety and environmental safety.

Deployment of the new Waste Generator Services process has already begun at the Idaho Nuclear Technology and Engineering Center and the Test Area North. Within two months, waste generators at the Test Reactor Area, Central Facilities Area, and Environmental Restoration will also begin using the service. Casey says the Radioactive Waste Management Complex and the Waste Reduction Operations Complex will come on line next year.



Waste specialists who work on the disposal of low-level waste successfully disposed of approximately 300,000 pounds of low-level waste from the Specific Manufacturing Capability project at the Test Area North during the summer of 1998. This represented the first low-level waste to be disposed of from the facility in three years. "We focus on one thing," says Roger Piscitella, waste type manager for low-level waste. "In this case it was the disposal of low-level waste," which resulted in eliminating the backlog.

The site routinely generates low-level waste and has historically placed a low disposition priority on the waste due, in part, to a lack of funding and regulatory drivers. Waste specialists in Piscitella's group will focus on disposing of approximately 6,500 cubic meters of backlogged low-level waste this fiscal year. This represents a three- to four-fold increase from previous years. "Our success hinges on the management philosophy that we will question why we are doing things and always look for the safest and most cost-effective way of doing it," says Piscitella.

Phil Gray, waste type manager for mixed low-level waste has one thing to say about it: "Get rid of it." Gray's group of waste specialists oversees both onsite generated mixed low-level waste and the mixed low-level waste slated to come to the INEEL for treatment under the Site Treatment Plan. With a mission of getting rid of the waste, Gray says success comes in getting rid of the barriers. Dennis Wilkinson, waste specialist for offsite waste, eliminated a number of barriers to successfully obtain waste from Hanford. The successful resolution of issues allowed Hanford to meet a milestone established by its customer. The Waste Experimental Reduction Facility will treat the 96 drums of waste in December and return all residual material to Hanford for disposal. Gray says using waste specialists like Wilkinson helps get the job done right the first time, reducing the amount of paperwork that has to be redone and ultimately, reducing the cost of managing waste.

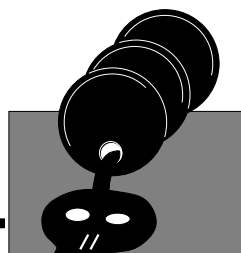
As Waste Generator Services continues to be implemented across the INEEL, the successes should continue. As Gray puts it, "We are a one-stop shop for waste management activities. We will get it done safely and cost-effectively."

INEEL, DOE, and DOD Engineers Teach Estonians Management Basics

Lockheed Martin Idaho Technologies Company's (LMITCO) Dave Carlson recently co-taught "basics of project management" to Estonians involved in the cleanup of that country's Paldiski nuclear site, a former Soviet nuclear submarine training center. The Estonians are developing stronger project management expertise to ensure efficient management practices are applied in environmental restoration projects.

The project management course is part of ongoing U.S. government assistance to republics of the former Soviet Union. It was developed jointly by the Department of Energy (DOE), LMITCO, and the Defense Systems Management College through a cooperative effort between the Environmental Protection Agency and the departments of Energy, Defense, and State.

Carlson and Dan Robinson of the Department of Defense (DOD) Defense Systems Management College presented the course at the Estonian Environmental Research Center in Tallinn, the capital of



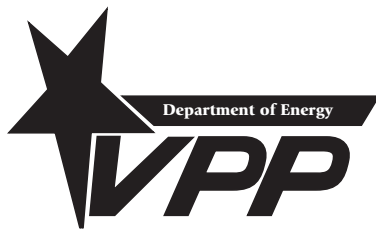
Estonia. The course gave 18 Estonians project management awareness about environmental restoration, as well as decontamination and decommissioning. The course encompassed a basic understanding of project management from an environmental perspective. It incorporated case studies, techniques, and tools from DOE project management. Examples of completed environmental projects at the Idaho National Engineering and Environmental Laboratory (INEEL) supported the instruction.

The course was tied to the way the Estonian Ministry of Environment conducts business and is consistent with the Project Management Institute Body of Knowledge, as outlined in a memorandum of understanding between the DOE and the Estonian Ministry of Economy.

DOE provided the Estonian Ministry of Environment's Learning Resource Center with 6 computers and software as part of an agreement that will provide 21 computers to the ministry, schools, and project offices.

DOE-Idaho Operations Office's Mike Judd, who coordinated the project's planning, attributed the success of the Estonian effort to the teaming effort with the DOD and the Defense Systems Management College.

EH-5 News Briefs



DOE Voluntary Protection Program (DOE-VPP)

The Weldon Spring Site Remedial Action Project (WSSRAP) has been recommended for Star status after DOE-VPP Team members evaluated the progress of MERIT goal implementation during an onsite reevaluation review, November 3-6, 1998. The first cleanup site in the United States to receive VPP recognition, WSSRAP was initially approved for MERIT status after a November 1997 onsite review. The DOE-VPP Review Team concluded that the MERIT goals were successfully addressed and recommended to management that the site be upgraded to full STAR status. WSSRAP, located in the suburbs of St. Louis, MO, is managed by MK-Ferguson and Jacobs Engineering.

★ ★ ★

Westinghouse Waste Isolation Division (WID) at the Waste Isolation Pilot Plant (WIPP) has been recommended for recertification of its VPP Star status after its first successful triennial onsite reevaluation, August 3-7, 1998. The DOE-VPP evaluation team identified no impediments to the continuation of the site's Star status and concluded the site has shown marked overall improvement in its safety program goals. WIPP, located in Carlsbad, New Mexico, and operated under contract by Westinghouse Electric Corporation, was the first DOE site to receive VPP recognition under DOE's Voluntary Protection Program.

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Wackenhut Services, Incorporated (WSI) at Savannah River Site (SRS) has been recommended for inclusion as a recognized DOE-VPP site. The DOE-VPP review team evaluated WSI's safety and health program, August 10-14, 1998, and concluded WSI to be effective in implementing all five DOE-VPP tenets. WSI is the management and operating contractor for DOE security services.

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Westinghouse Savannah River Company (WSRC) will be recommended for Merit Status with the completion of the team's report. The VPP team visited WSRC twice; from February 24, 1997, through March 7, 1997, and from June 15-19, 1998. Interim regulatory action under Price Anderson, and lengthy discussions regarding Merit goals caused delays in completing this review. To the credit of both employees and management, WSRC's safety and health program has continued to improve.

Arrangements for formal recognition and an awards ceremony for each site are pending management approval. Visit the DOE-VPP Web Site at <http://tis.eh.doe.gov/vpp/> or contact the DOE-VPP office at 301-903-3638 for more information.

GLASTOP

The Office of Worker Health and Safety has shared with the General Services Administration (GSA) the computer source code of the DOE program, GLASTOP, which evaluates the design adequacy of window glass against the effects of explosions. GSA is using this information as part of its ongoing efforts to protect government buildings against terrorist bombings. Gerald Meyers, explosives expert, is working with GSA representatives on possible code modifications to better suit GSA needs. For more information, contact Gerald Meyers at 301-903-3190.

10 CFR 835 Amendment

Title 10 Code of Federal Regulations Part 835 (10 CFR 835), Occupational Radiation Protection, Amendment was published in the Federal Register on November 4, 1998. The final rule, an amendment to DOE's primary occupational radiation protection standards, establishes the world's first radiobioassay accreditation program; codifies DOE's radioactive sealed source accountability requirements; and establishes performance-based radiation safety training requirements. Effective December 4, 1998, the amendment requires complete implementation within 18 months. Copies of the final amendment are available on the Radiological Hazards Management and Worker Protection Web Site at <http://tis.eh.doe.gov/whs/rhmwp/rule.html>.

External Regulation Pilot Project Core Group Report Available

The report, "Pilot Project on OSHA External Regulation of DOE Facilities - Oak Ridge National Laboratory and East Tennessee Technology Park," has been prepared by the Pilot Project Core Group and is available at <http://tis.eh.doe.gov/whs/bookshelf/index.html>. The Group, consisting of DOE, Occupational Safety and Health Administration (OSHA), contractor, and labor representatives, was established in June 1998 to facilitate the conduct of an OSHA External Regulation Pilot Project at selected Oak Ridge facilities. For more information, contact Terry Krietz at 301-903-6456.

External Regulation Pilot at Lawrence Berkeley National Laboratory

During the weeks of January 4 and 11, 1999, EH-5 staff participated in field activities for the external regulation pilot project at Lawrence Berkeley National Laboratory. The pilot is part of an ongoing process involving DOE, the Nuclear Regulatory Commission, the Occupational Safety and Health Administration (OSHA), and appropriate state and local agencies. Its purpose is to examine issues surrounding DOE's move toward external regulation of worker safety and health at its government-owned, contractor-operated facilities. Data, including simulated OSHA citations, are currently being reviewed and compiled for inclusion in the final report due to Congress on March 31, 1999. For more information, contact Terry Krietz at 301-903-6456 or Beverly Stephens at 202-586-5942.

Fire Protection Safety and Health Hazards Alert

A Safety and Health Hazards Alert, DOE/EH-0518 (Issue 99-1), has been issued that describes recent DOE experience with potentially defective automatic fire sprinklers. The Alert focuses on developments at Argonne National Laboratory-East with Reliable Model A sprinkler heads and the recent recall of "Omega" sprinklers. DOE fire safety professionals should use this information to aggressively investigate site conditions and take remedial action as appropriate. A copy of the Alert is available at <http://tis.eh.doe.gov/docs/hha/links.html>. For more information, contact Dennis Kubicki at 301-903-4794.

Researchers Evaluate Yucca Mountain Site for Waste Depository

Yucca Mountain, once an obscure protrusion in the Nevada desert, is now a bustling center of engineers, scientists, chemists, and geologists, who are working together to determine whether the site is suitable to house the national high-level nuclear waste repository. The road to suitability leads down many diverse paths, from environmental and physical concerns to political and social issues. Government regulations state that a suitable site must be able to keep nuclear waste isolated for thousands of years so the radioactive materials pose the same risk to the public as that of unmined uranium ore.

Frank Kulacki, professor of mechanical engineering at the University of Minnesota, says one of the main concerns for high-level nuclear waste storage at Yucca Mountain or any other geological site will be how heat generated from the waste impacts the surrounding environment and thus the waste containers themselves. Kulacki shared his expertise in thermal science and engineering at an Idaho National Engineering and Environmental Laboratory (INEEL) Science and Engineering Seminar on October 28, 1998. The seminar was open to the public.

As radioactive waste is stored, it decays and naturally gives off heat. In the proposed Yucca Mountain facility, the heat from a full capacity of 70,000 metric tons heavy metal of high-level waste and spent nuclear fuel may be up to 40 to 50 kilowatts per acre. Anticipating the response of the waste containers and the environment to that level of heat is vital in determining the safety of the site for storage. Many scientists believe the most likely way radioactive materials could be released from the storage facility is through transport of contaminated water after containers fail. The water could come from above ground, such as rainwater, or from underground, such as an aquifer. Containers are designed against corrosion, which is influenced by moisture and temperature, so it is important to verify that temperatures are below those that would lead to unacceptable corrosion rates or unacceptable rock fracture and fragmentation.

Hydrogeologists are determining how much water is in the rock surrounding the storage space and how that water moves through the

rock. Kulacki and other researchers are trying to figure out how and where water and water vapor will travel when the surrounding rock heats up during storage. Determining the effects of long-term heat exposure is complex, he says, because of the setting and the uncertainties. Some tests are being done inside Yucca Mountain by heating the rock and studying the effects. However, these tests are limited, since they are done over a few years, and the true effects of the heat will take place over thousands of years. The key time frame doesn't come until 10,000-15,000 years after the repository is filled, and the effects could be critical for up to 30,000 years. "This time span is beyond the human capability to comprehend," said Kulacki. "All of recorded human history is only 6,000 years."

Kulacki uses computer models based on possible interactions between the heat source and the surrounding environment for his research. His models reflect storage sites in general and the Yucca Mountain site specifically. Using engineering, mathematical, and statistical experiments in a framework of standard assumptions, Kulacki is finding answers to many questions.

His main findings are promising for long-term storage. His models predict acceptable temperature increases. The primary type of heat transfer he finds is conductive in nature, not convective. This means the surrounding rock is heated because of its proximity to the source (by conduction), but the air and water vapor do not circulate through the rock (by convection). If convection were significant, the temperature increases would be lower than current model predictions. The low level of convection greatly limits water circulation and any associated transport of contaminated water.

Kulacki's research is ongoing, and is only one piece of a much larger, very diverse and complex issue. In fact, he acknowledges it is only part of the thermal-environmental study necessary. His research does give some answers to the storage dilemma, however, whether the waste goes to Yucca Mountain or some other site.

Integrated Safety Management Workshop Attracts Environment, Safety and Health Professionals

The Fourth Integrated Safety Management (ISM) Lesson Learned Workshop was held October 20-22 in New Orleans, Louisiana. Over 420 DOE, contractor and national laboratory line managers, environment, safety and health professionals, support personnel and workers attended. The workshop reinforced the ISM theme: "Do Work Safely." Sponsors of the meeting were the offices of Fossil Energy and Environment, Safety and Health, the Strategic Petroleum Reserve Project Management Office, and the Safety Management Implementation Team (SMIT). The ISM initiative is a DOE-wide effort to systematically integrate safety into all levels of management and work practices to strengthen protection of the public, workers, and the environment. John Wagoner, Manager Richland Operations Office, gave the keynote address. William (Hoot) Gibson, Project Manager, Strategic Petroleum Reserve, and Joe DiNunno, a member of the Defense Nuclear Facilities Safety Board, addressed the opening session.

Workshop participants were greeted in a taped message by Secretary of Energy, Bill Richardson. He told participants: "There is no goal of greater value than the goal of safety excellence in DOE." In his

October 1, 1998, memorandum, Secretary Richardson stated his personal commitment to attaining this goal through the principles of ISM. A tragic fatality and several critical injuries in Idaho occurred in 1998. Investigators determined that serious safety deficiencies contributed to the accident.

Topics for the concurrent workshops included implementation of lessons learned, verification reviews, work control, environmental management, worker involvement and feedback, and Society for Effective Lessons Learned Sharing (SELLS) initiatives. An executive safety management course was given. This course will also be offered at sites throughout the DOE complex.

According to Richard Crowe, Director of the Safety Management Implementation Team, "Implementation of the ISM safety concept requires improving the safety culture across the board until it is as natural as fastening seat belts. Safety must become second nature." DOE's goal is to fully implement the ISM initiative at all facilities by the year 2000. Information on ISM and the workshop proceedings are available at <http://tis.eh.doe.gov/ism/>.

Fossil Energy Environment, Safety and Health Achievement Award for 1998

The Integrated Safety Management Lessons Learned Workshop in New Orleans provided an appropriate backdrop for the presentation of the Fossil Energy (FE) Environment, Safety and Health (ES&H) Achievement Award for 1998. Dr. Craig Zamuda, Director of FE's Office of Environment, Security, Safety and Health, and Hoot Gibson, Director of the Strategic Petroleum Reserve Project Management Office (SPRPMO), presented the 1998 award to Jorge Aguinaga, SPRPMO; and Dennis Henderson and Jimmy Salinas, both of the ES&H Division of DynMcDermott Petroleum Operations, Co. The recipients were honored for their innovations in



crude oil tank cleaning. Their ingenious approach reduces tank cleaning costs approximately 50 percent, decreases waste and potential pollution, minimizes workers exposure to hostile environments and toxic materials, and is broadly applicable throughout the petroleum industry. The honorees received individual certificates, decorated coffee mugs, and a monetary award. Dr. Zamuda also presented

Hoot Gibson, Director of the Strategic Petroleum Reserve, presents the 1998 Fossil Energy ES&H Achievement Award to Jorge Aguinaga.



Gibson presents the award to Jimmy Salinas (Dennis Henderson was unable to attend the ceremony).

Mr. Gibson with a plaque to mark the site's contributions to ES&H.

The FE ES&H Annual Achievement Award was established in 1995 to honor, encourage, and publicize innovation and creativity in the field. The award is intended to communicate accomplishments among FE sites and to share solutions to common problems. For additional information on the award, please contact Craig Zamuda at (202) 586-6367.

New INEEL Director of Site Operations Focuses on Worker Safety

The newly appointed director of site operations at the Idaho National Engineering and Environmental Laboratory (INEEL), William Gay, is one of Lockheed Martin Idaho Technologies Company's (LMITCO) most vocal proponents for worker safety. Mr. Gay is charged with implementing operational excellence across the site—in other words, he sees that all work at the site is effectively planned and safely executed, while ensuring that the technical work force is effectively trained in Conduct of Operations and Conduct of Maintenance. He is also involved with implementing operational excellence into the Integrated Safety Management System (ISMS) concept. It is a big job with a simple overarching theme of worker safety.

Gay's main objective in fulfilling the responsibility of the position is to do what is needed to help workers on the job and to ensure that "all policy and procedure changes and training objectives [are] focused to support INEEL workers in the field performing actual work." Because of events that have tarnished the INEEL safety record, he is underscoring the need for a change in the approach to work. "We have a great workforce here. But there are a few things we need to work on to get better."

The new Director's first initiative is to integrate Conduct of Maintenance at all INEEL facilities. The process will address all corrective and preventive maintenance procedures while factoring in all the elements of the Voluntary Protection Program and ISM. Ultimately, he envisions a single site Operations Manual that will be a "one-stop shop" for the person performing a task. Mr. Gay admits there may be some "gnashing of teeth" from those who feel they cannot get work done as fast as they'd like while training is being rolled out and a manual is being developed. However, he says, "I've

never been worried about productivity. That's focusing on the wrong stuff. We need to look at putting the proper processes and procedures in place to be able to do work right the first time, safely." Gay points to rejuvenated technical training as a key ingredient in operational excellence. "We're going to see a lot more emphasis on quality training as a first step. Workers have to have a good handle on things and they need to have user-friendly procedures."

Gay is taking his operational excellence message across the site. He holds weekly meetings with all seven area directors at the site; he is coordinating visits to all LMITCO's INEEL site facilities; and he's holding group discussions and meeting with individual employees. "I don't consider myself management," Gay explains. "I'm here for the workforce. I want to get out and respond to employees' questions, get an idea from them about what documents they can use, and see for myself how we can improve safety and compliance on the job." He reiterates his zero-defect concept of site operations, indicating he has no tolerance for facilities that operate unsafely.

Gay wants to open the lines of communication so employees have all the tools they need to operate INEEL's facilities and activities safely and efficiently. In addition to his visits with employees, he'll take the operational excellence message to employees across the site in an upcoming teleconference with LMITCO President, John Denson. Because he's also eager to hear from employees with any concerns about worker safety, he's advertising his pager number, telling employees, "You can call me anytime between 6 a.m. and 9 p.m. and I'll respond to your call." "We're all in this together," Gay sums up. "We've got to do everything possible to see that people don't get hurt on the job."

Public Engaged in Fernald Cleanup

During a recent public meeting, a group of interested business owners, teachers, elected officials, and residents living near the Fernald Environmental Management Project learned how tons of low-level contaminated soil have been excavated and placed in the first of eight waste disposal cells located along the northeastern corridor of the site. Public information director, Gary Stegner, Department of Energy (DOE) Fernald Office, said the public's involvement and interest in Fernald activities has not diminished since most of the major cleanup decisions have been made. "Our stakeholders worked long and hard with DOE and Fluor Daniel Fernald to develop balanced, practical cleanup solutions," Stegner explained. "Now that we're in the field, they're more interested than ever to see the work being accomplished as planned."

One way DOE and Fluor Daniel Fernald continue to involve stakeholders in cleanup decisions is through Fernald Cleanup Progress Briefings. Each month, DOE project managers provide detailed updates on field work, schedules, milestones, and cleanup documents available for public review. "The exchange is two-way," Stegner said. "Project managers receive direct unfiltered feedback from the public on issues and concerns, and stakeholders have an opportunity to talk one-on-one with the decisionmakers."

Because the site's contour is changing so quickly, tours and speaking engagements have increased significantly in the last year. Citizens



Fernald's monthly Cleanup Progress briefings represent a two-way exchange. Project managers receive direct, unfiltered feedback from the public on issues and concerns, and stakeholders have an opportunity to talk one-on-one with the decisionmakers.

groups, teachers, students, local residents, and community leaders routinely board Fernald buses to see cleanup activities firsthand. "The impact of seeing, in person, the skeleton of a former production building or waste being placed in the disposal facility is much more powerful than words or photos can depict," Stegner added.

Landscape Changing at Fernald

In July, Fernald employees in the Facilities Closure and Demolition Project Division demolished the site Boiler Plant, bringing the total of site structures demolished to 32 and drastically changing the site's landscape. The first of approximately 200 buildings demolished at Fernald was Plant 7, in 1994. The Boiler Plant, pulled to the ground on July 23, was the most recent structure demolished at Fernald. "What's really impressive is that we're able to demolish major complexes while still making progress removing smaller structures and moving forward with safe shutdown," said John Trygier, the DOE-Fernald team leader responsible for overseeing decontamination and dismantlement activities at the site. "The fact that we've been able to implement this aggressive schedule safely is good for the site. The work we're doing clears the way for the On-Site Disposal Facility and soil remediation activities."

According to Trygier, putting together comprehensive contract packages enables work to proceed more smoothly in the field. "Every time we do this we get a little smarter about it," he said. "We have it to a point now where we know ahead of time exactly what information the contractor is going to need from us, and they know what they're expected to do. This kind of efficiency saves us time and money." The next major complex set for demolition is Plant 9, the former Special Products Plant. All decontamination and dismantlement activities at the site should be completed in 2005.



Plant 7 (left) was the first building at Fernald to be demolished (1994). Since that time, 31 additional buildings have been dismantled; the most recent of those was the Boiler Plant (above), which came down on July 23, 1998.

Fernald Recycling Boosts Cleanup and Saves Money

What started out as a small recycling project by a few employees at the Fernald Environmental Management Project in the early 1990s has saved thousands of dollars, generated revenue for the site and community, and diverted thousands of pounds of materials destined for costly disposal to reuse options.

Over the past few years, the Department of Energy (DOE) and its cleanup contractor, Fluor Daniel Fernald, have donated or sold over 400,000 pounds of nonhazardous chemicals that are no longer used at Fernald. They have also established contracts to provide decontamination and recycling services for scrap metals; diverted thousands of pounds of materials, such as packaging and laundry bags, to reuse options; and developed partnerships with local schools and organizations to recycle or reuse office materials and beverage cans. Jack Craig, DOE Fernald office director, said that recycling and waste minimization have been important to Fernald's cleanup mission. He noted that "through some creative ideas by our employees, we have decreased our disposal costs, reduced materials which would have been declared waste, sent the material either to an offsite disposal facility or to Fernald's onsite waste disposal facility, and provided a source of revenue to local schools and community groups."

Fernald's enthusiasm towards recycling and waste minimization initiatives has peaked. "Now that most projects have completed the extensive planning process and initiated construction and field activities, there are more apparent opportunities to reduce project costs and accelerate schedules through recycling," Craig said.

In 1997, the DOE Ohio Field Office designated Fernald as the lead coordination office for pollution prevention and waste minimization efforts for the five project office sites. Over the last 2 years, Fernald has received funding from the DOE Office of Pollution Prevention (EM-77) to sponsor special waste minimization projects that benefit sites throughout the DOE Ohio complex. Pete Yerace, DOE Fernald Waste Minimization coordinator, identified one project as the development of a users guide to help sites like Fernald identify and deploy waste minimization and recycling initiatives into environmen-

tal restoration and decontamination and dismantling projects. "Our challenge was to come up with a practical tool that project managers would use to evaluate opportunities where waste minimization and recycling could benefit their project," Yerace said. The guide contains worksheets and step-by-step instructions on how to deploy recycling or waste minimization techniques during various stages of a restoration or decontamination and dismantlement project. The users guide is available on the Internet at <http://apollo.osti.gov/p2wmin/home.html> or as a link through Fernald's Waste Minimization Pollution Prevention Web Site, <http://www.fernald.gov/Key%20Projects/WasteMin/polprev.htm>.



By the end of August, Fernald will ship 95.5 tons of shredded copper to Alaron Corporation in Wampum, Pennsylvania, to process it for free release and recycle. Most of the copper came from electric motor windings recovered from DOE's Gaseous Diffusion Plants.

Fernald Reaches 3 Million Safe Work Hours

Fernald Workers recently achieved 3 million safe work hours. Accumulating this impressive safe work record was truly a team effort. One employee would have to work 24 hours a day for more than 342 years to reach 3 million safe work hours; the effort took Fernald employees about 9 months. "Our near-term goal is to achieve 3.9 million safe work hours in 1998," said Tony Renk, Fluor Daniel Fernald's director of health and safety. "Our ultimate goal is to continue the record through project completion."

Fluor Daniel recently recognized this commitment to safety by presenting four Zero Accident Awards to the site. "Safety is Fluor Daniel's top priority and these are the highest awards we can bestow on a project," said A. B. Robinson, Fluor Daniel's vice president of corporate safety. "We recognized Fernald for accumulating these hours without a lost-time accident and for their low rate of recordable events." According to Dave Kozlowski, director of safety for DOE-Fernald, he is encouraged by Fluor Daniel Fernald's safety performance. "The statistics are good indicators that through employee involvement and enhanced performance expectations, we have an effective system in place," he said. "The real measure is a shared commitment that we can always do better."



The removal of holdup material from the interior of former production equipment is one of the many projects Fluor Daniel Fernald employees performed safely within the last 9 months.

The Office of Oversight Implements an Oversight Information Network

During the last several years the Office of Oversight has been aggressively developing its information infrastructure in support of several of its important objectives. The office is committed to making use of modern information management tools and technologies to conduct its evaluations with smaller teams and less disturbance to the sites, without lowering the standards of excellence already established. An important step in this direction has been the development of the Oversight Information Network (OIN).

Taking advantage of the synergy created by the strong DOE commitment to implement Integrated Safety Management (ISM) and the availability of computer network technology and the Internet, the Office of Oversight has recently developed the OIN. The OIN is an automated system that allows unprecedented opportunities to extract and organize environment, safety, and health (ES&H) information across DOE sites and operations. The system permits an authorized user to extract this information that may reside behind a site's firewall and to cross-reference and display it along the ISM framework. Each site can set the criteria on data access, ensuring that security of other information and of the site network is maintained.

Application of the OIN does not require sites to change how they manage ES&H information or to reorganize this information. Sites are free to maintain locally developed systems that address their specific needs and criteria for assembling data sets of interest to the OIN users. The systems can be defined broadly enough to capture data without regard to the format in which the data are maintained. This flexibility permits DOE Headquarters to be constantly aware of the status of safety programs at each site without a long and expensive development cycle to collect large numbers of hard copy documents or the need to tailor data collection protocols for each information source that maintains part of the information that is needed.

How OIN Works

Architecture: The OIN is a web-based tool that securely delivers a site's internal ES&H information to external users via the Internet. The system takes unrelated data sources (see Figure 1), such as web documents, word processing files, and databases, and categorizes them

according to the ISM framework. Users access information with a web browser, such as Netscape or Internet Explorer, without ever connecting directly to the actual data sources.

The central component of the OIN is the Translation Manager. The Translation Manager consists of a set of retrieval tools and a "metadata" database that describes the data sources. A data administrator uses the Translation Manager database to register data sources that are authorized for viewing by OIN users and also defines how the data will be assigned to the ISM core components. The OIN server uses this information to dynamically generate web pages, resulting in a completely metadata-driven interface to the data sources.

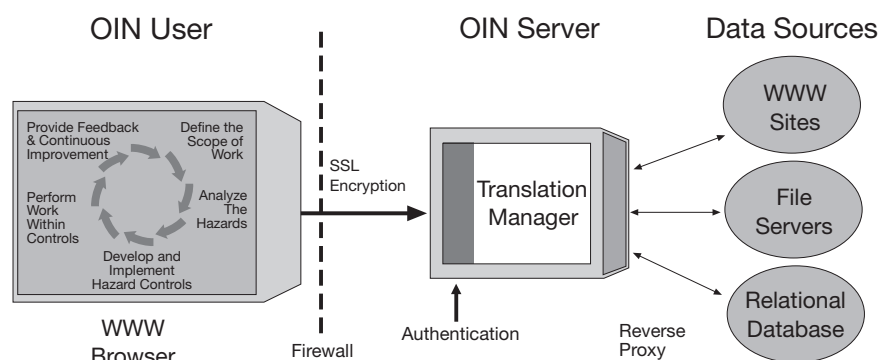


Figure 1. OIN Architecture Overview

System Components: A number of commercial off-the-shelf software products are integrated to provide the functionality for extracting and organizing information from structured and unstructured data sources at a site. (See Figure 2.)

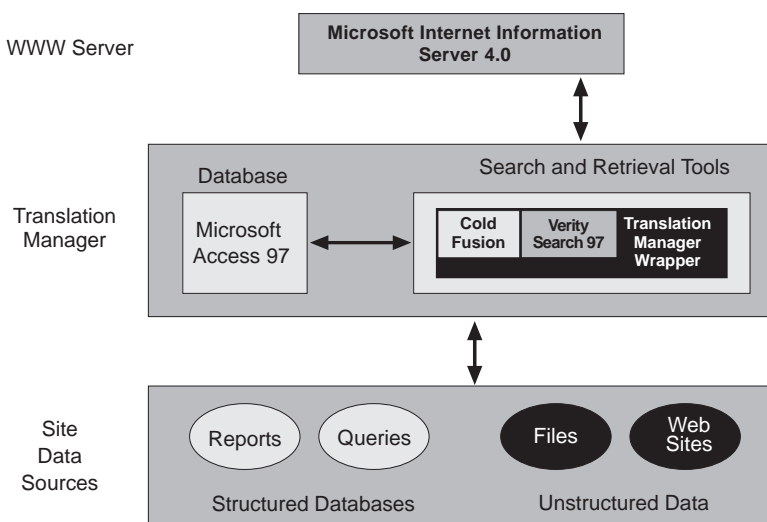


Figure 2. OIN System Components

Security: Security is an integral part of the system architecture. In addition to utilizing Secure Socket Layer (SSL) for data encryption, the system requires users to authenticate themselves (log onto the OIN server) before allowing them access to the OIN Home Page. Once a user is authenticated, the Translation Manager database provides another level of access control to the data. Only those data sources that exist in the database are available to users.

Reverse Proxy: When a user "clicks" on a link, the OIN server initiates the Translation Manager, which retrieves the information on the user's behalf. As a result, the user never communicates directly with the actual data source. The OIN server is the only server on a site's Intranet with which OIN users may communicate. Once the document is retrieved, the Translation Manager scans it for links to other documents. Translation Manager checks these "embedded" links against the database and disables those that reference documents not registered in the database. Links to documents that are in the database are rerouted to go through the OIN server, preventing the user from attempting to connect directly to a data source. Once the OIN server has modified the document, it is encrypted and sent to the user's browser.

Conclusion

A "model" of the OIN at Pacific Northwest National Laboratory (PNNL) and at Sandia National Laboratory established the boundaries within which the software tool can seek and automatically organize information relevant to ISM from the vast holdings of site information. Results at PNNL and Sandia clearly show that relevant data can be captured through a broadly defined information model and that initial results can be used to refine subsequent searches that will identify relevant information more efficiently, OIN will soon be in place at Los Alamos National Laboratory, Flou Daniel at

Hanford, and at the Germantown DOE Headquarters. In addition to the utility of the software tool for the Office of Oversight, the tool was found to be very useful at each site for focusing and . zing their information according to the requirements of the ISM policy.

Considering the success of OIN, the Office of Oversight will continue its implementation at a number of sites during FY-99. Complexwide implementation of the OIN, shown conceptually in Figure 3, will improve sharing information and lessons learned and will provide the authorized users from anywhere, at any time, access to "real-time" information organized within the overall context of the ISM policy. The ES&H Office of Information Management has initiated systems design work to adopt the OIN architecture as part of ES&H Technical Information Services.

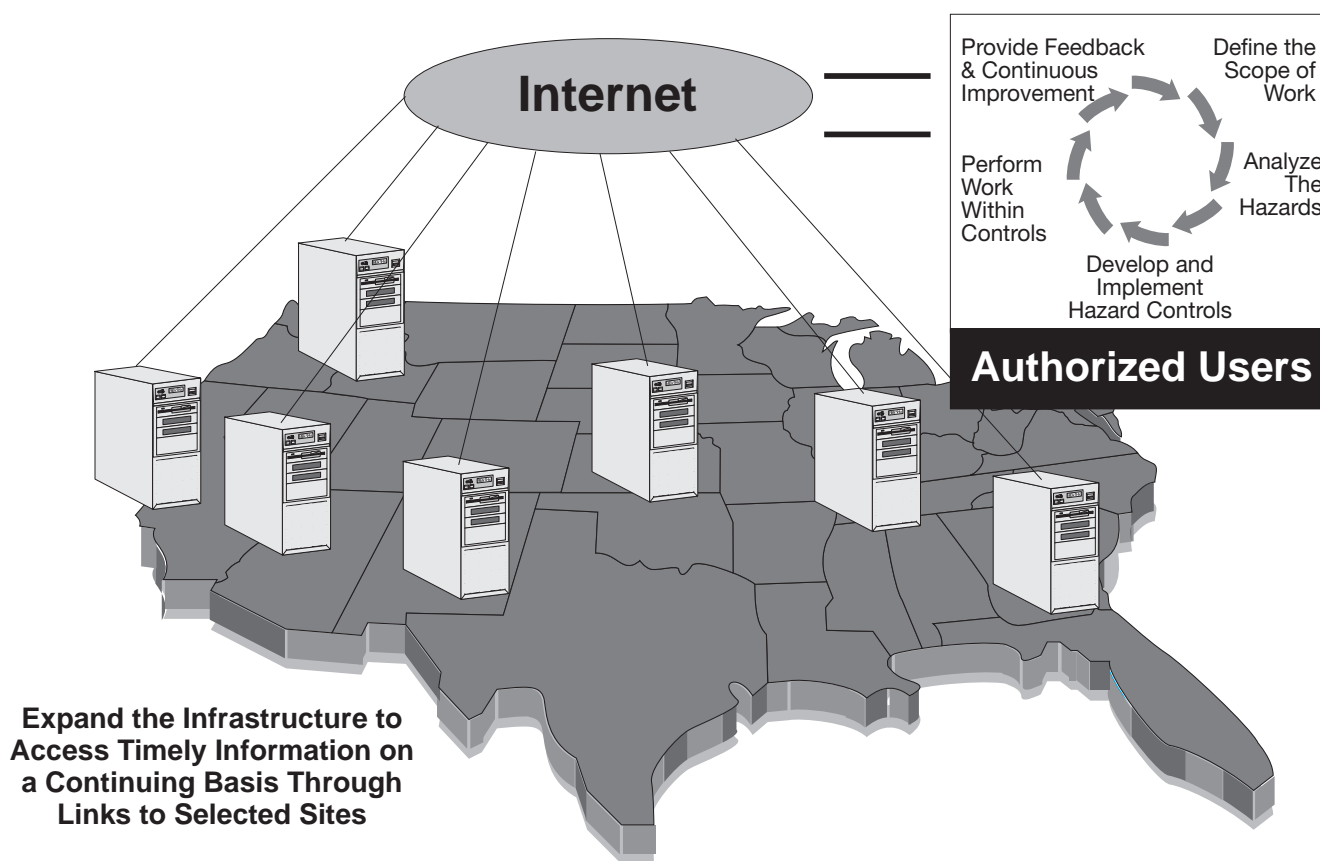


Figure 3. Conceptual View of Fully Implemented OIN

Review of Unclassified Computer Systems at Major DOE Sites

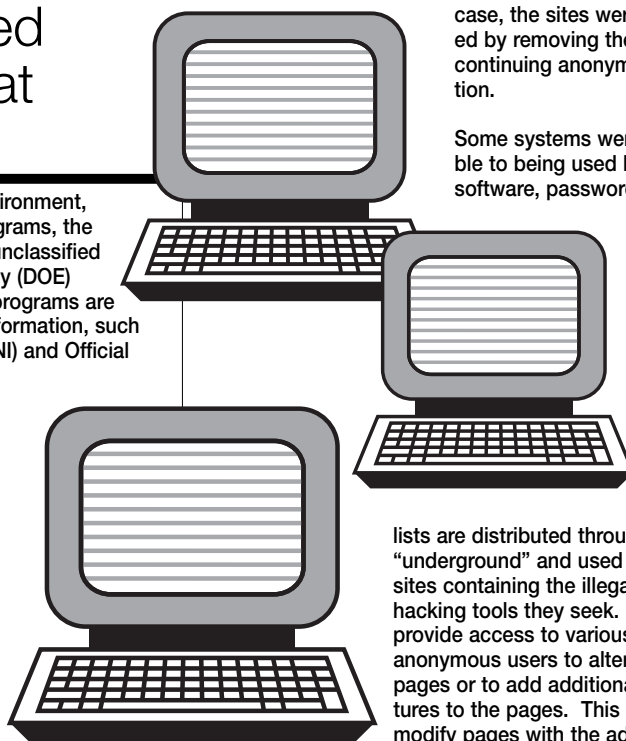
In its role of providing independent oversight of environment, safety, health, nuclear safeguards, and security programs, the Office of Oversight conducted reviews of selected unclassified computer systems at all major Department of Energy (DOE) sites. The purpose was to determine whether site programs are adequate to ensure that national security-related information, such as Unclassified Controlled Nuclear Information (UCNI) and Official Use Only (OUO) information, is not being placed on systems that are freely accessible over the worldwide Internet.

The reviews, involving the scanning of various computer systems from a location outside each site, focused exclusively on systems connected to the Internet that allow open, anonymous access. An interim report, published in March 1998, provided the results of the first half of the review. The final report, published December 1998, provides the results of the scanning conducted at all major DOE sites.

While the reviews were primarily intended to identify vulnerabilities and provide line managers with the information they need to improve security, they also identified vulnerabilities involving other sensitive information that should not be accessible to the general public. This included information such as salary data, individual radiation exposure records, and Cooperative Research and Development Agreement (CRADA) documents not intended for worldwide distribution.

In conducting the reviews, the Office of Oversight's Office of Security Evaluations uses an automated scanning tool that identifies computer systems configured as file transfer protocol (FTP) servers. Once the servers are identified, the tool automatically attempts to log on by using "anonymous" as the user name. If granted access anonymously, the system is manually explored to determine the specific information available, as well as the extent to which the anonymous user can exploit, delete, or modify any of the accessible information. While conducting the scans, the utmost caution is exercised so as not to erase data, damage any system, or compromise the confidentiality of any data, beyond what the system already allows.

The results of the scanning show that many of the Department's anonymous FTP servers are not securely configured. Sensitive information was found on many computer systems that are accessible over the Internet. In one instance, files were determined to contain highly sensitive documents, two of which were classified. Other sensitive information found to be available to anonymous users included UCNI, detailed descriptions of a facility containing special nuclear material, lists of employees having authorized access into restricted areas, and "export-controlled" technical data. Also, CRADA information, information marked OUO, and DOE-defined sensitive documents, such as personal dosimetry reports, performance appraisals, and salary spreadsheets, were found. In several cases, user passwords were cracked, granting full access to user files and programs. Also, many e-mail passwords were revealed, allowing access to large e-mail servers where user data directories are available for accessing or downloading. In each



case, the sites were notified and responded by removing the document file or discontinuing anonymous access authorization.

Some systems were found to be susceptible to being used by hackers to distribute software, passwords, and lists of other systems currently used to distribute illegal software. One case was noted where pirated software was present on a DOE system. Once a server is used for this purpose, it is referenced in a "pirate list" of compromised sites. These

lists are distributed throughout the Internet "underground" and used by hackers to locate sites containing the illegally obtained software or hacking tools they seek. Some systems that provide access to various Web pages allow anonymous users to alter the content of existing pages or to add additional information or pictures to the pages. This permits hackers to modify pages with the addition of pornographic or anti-government information, such as the recent problems experienced by the Department

of Justice, the Air Force, and the Central Intelligence Agency. Using information obtained through anonymous access, reviewers also were able to compromise user accounts on several systems.

After the interim report was released, the number of observed weaknesses decreased and significantly fewer systems were vulnerable to penetration. Nevertheless, the results of the scans, along with other confirmed incidents, reveal that hackers can and have compromised DOE systems and that systems are vulnerable to serious malicious activity, including the introduction of viruses. Sites that have established effective barriers, such as firewalls, have fewer problems. Also, placing anonymous FTP servers under the control of system security administrators helps ensure that system users do not place sensitive information at risk. When setting up an anonymous-access Internet server, only information that can be shared with the world should be placed on the server, and all directories that are accessible should be restricted to "read-only" access. If "write" access is necessary, it should be provided in a secure manner. More detailed information regarding proper file server configuration can be found through various sources on the Internet, including the DOE Computer Incident Advisory Capability. The final report of the review of unclassified computer systems at major DOE sites is available on the Office of Oversight Home Page under "Special Reviews and Studies" at <http://tis.eh.doe.gov/oversight/bookcase2.html>

Achieving Success in Integrated Safety Management

As indicated in Secretary Richardson's recent policy statement, the unexpected activation on July 28 of the high-pressure, carbon-dioxide fire suppression system in Building 648 at the Idaho National Environmental Engineering Laboratory (INEEL) provided a tragic reminder of the need to hasten the implementation of Integrated Safety Management (ISM). Within seconds, workers found themselves struggling to escape the building, while confronting a potentially lethal and disorienting atmosphere under near zero visibility. The accident caused one fatality, several life-threatening injuries, and a significant risk to the safety of initial rescuers.

The accident was preventable. In many respects, circumstances contributing to the accident were in direct contrast to the principles of ISM. These circumstances included the failure to perform hazard analysis, implement work controls, establish effective hazard controls, or respond to a worker's safety concern. Other contributors included a faulty system design, the continued use of carbon dioxide following reactor shutdown, the failure to install an isolation device, and the failure to train workers on carbon dioxide hazards, alarms, and emergency response.

Although tragic, the accident is rallying senior departmental managers to work together in implementing ISM across the complex. The Office of Field Management is leading the effort to develop a comprehensive action plan to achieve this goal. Hopefully, the plan will accelerate application of the five ISM core functions at every activity within the Department. However, to achieve success, existing barriers must be overcome. There will be some resistance, which is normal when a new policy or change is introduced. This usually stems from an affinity for the "old way" of doing business (e.g., "it worked okay for 25 years!"), a preference for informal work control, perceived pressure to get work done quickly, pride in local expertise and experience, or the fear of losing influence. The numerous initiatives that have preceded ISM strengthen this resistance (e.g., total quality management, conduct of operations, graded approach, necessary and sufficient, work smart standards, enhanced work planning, and the voluntary protection program). While many of these initiatives are beneficial and can support ISM, it is not surprising that some people adopt a "wait and see" attitude.

Much of the resistance to change occurs at the middle or lower manager levels where seniority and experience tend to accumulate along with an affinity for the old ways of doing business. Historically, heavy reliance is placed on experience and expertise by these managers. They may view a more structured, standards-based approach, such as ISM, as a threat to their importance and influence within the organization. Nevertheless, without their full understanding and support, even the highest level of commitment and top-down direction from senior management will not achieve success in implementing a policy like ISM. The British refer to this as the "meat-of-the-sandwich problem" where middle managers can stifle even the most aggressive attempts at change by simply not endorsing or passing on senior management direction. In fact, to ensure success in implementing ISM, it is essential that middle managers become the "agents of change," using their influence to promote, train, and provide feedback.

Another barrier to implementing ISM, particularly at the working level, is that it may be viewed by some as nothing new, simply a "repackaging" of what has been going on for 25 years—a paper-work exercise. In truth, if ISM principles had indeed been in effect, the Idaho carbon dioxide accident and many other avoidable accidents and near misses would not have occurred. Sustained acceptance of a new policy requires managers at every level to endorse

the need for change, promote it as truly different, and hold workers accountable for acceptance and implementation. One problem in convincing people that ISM is something new is that the underlying principles and core functions sound so familiar and seem to be simple common sense. For instance, isn't defining the work, analyzing the hazards, and controlling the hazards, something we've been doing all along? More often than not, the answer is no, at least not in a structured, consistent, and effective manner.

ISM represents a structured, consistent, and integrated approach to safety management and the control of hazards that incorporates all applicable requirements and standards into the process, avoiding undue reliance on individual expertise, judgment, and perceived common sense to ensure safety. This approach cannot succeed as long as there are as many as 28 different work control processes at one site, with opportunities for exemption even from these. A perceived common sense approach or the judgment and expertise of an individual cannot continue to be the sole factors in ensuring safety, as so vividly demonstrated by the Idaho accident. Shortcuts, work arounds, and procedure non-use to meet schedules cannot continue to be accepted.

The timely and effective implementation of ISM will require significant management and staff commitment and effort at every level in every organization. A better job must be done in explaining what ISM is and why it is different. More time must be spent in the field promoting, coaching, and training, and in consolidating as many work and hazard control processes as possible into a cohesive system that incorporates all ISM elements.

Funding reductions, increased use of subcontractors, privatization, the shutdown of hundreds of facilities, and the unique and challenging hazards associated with decommissioning and cleanup, all combine to make it absolutely critical that ISM be successfully implemented sooner rather than later. As Secretary Richardson stated, it is time to put ISM into action at all levels. Safety must be an inseparable part of every activity of the Department, whether it is operations, research, maintenance, or environmental restoration. Our workers have a basic right to understand the risks associated with their work, to be adequately protected, and to return unharmed to their families following a day's work.



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